

39-AA-0015

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. 97-141

WASTE DISCHARGE REQUIREMENTS  
FOR  
FORWARD INCORPORATED  
FORWARD LANDFILL  
CLASS II AND CLASS III LANDFILLS  
CLASS II LAND TREATMENT UNITS, CLASS II WASTE PILES  
CLASS II SURFACE IMPOUNDMENTS  
POSTCLOSURE MAINTENANCE OF CLASS I LANDFILL  
SAN JOAQUIN COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. Forward Incorporated (hereafter Discharger) submitted, a Report of Waste Discharge, dated 26 April 1996, a Waste Discharge Requirements Revision and Technical Equivalency Report dated 4 December 1995, and design and construction documents for waste management unit D-97, dated 9 April 1997. These WDRs combine information from these and other reports to reflect certain design and operational changes at the facility. The landfill facility was previously regulated by Waste Discharge Requirements (WDR) Order No. 94-014 in conformance with Title 23, California Code of Regulations (23 CCR), Division 3, Chapter 15 (hereafter Chapter 15), and Subtitle D of the Resource Conservation and Recovery Act.
2. The 157-acre disposal site, Assessor Parcel Number 201-060-03, is owned and operated by Forward Inc. Waste treatment, storage, and disposal activities have occurred within approximately 60 acres of the site. The site is seven miles southeast of Stockton, in Section 3, T1S, R7E, MDB&M, as shown in Attachments A through C. Attachments A through E are incorporated herein and made part of this Order.
3. The facility includes: 23 existing or proposed waste management units (WMUs) for waste treatment and disposal; a transfer station/resource recovery facility for waste separating, sorting, and recycling activities; and, equipment storage and support areas. The WMUs are described in Finding 8.
4. The facility includes one Class I unit (WMU A). This landfill was constructed in 1979, operated until October 1984 and closed in 1989. It consists of four north-south trending clay lined trenches covering an area of eight acres. The trenches are filled with mostly "designated" and some "hazardous" waste. This unit was reclassified from Class II-1 to

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Class I for the purpose of closure and postclosure maintenance in Order No. 89-148. The cover consists of a foundation layer, a 24-inch,  $1 \times 10^{-6}$  cm/sec compacted clay layer, an 18-inch vegetative drainage layer, and a culvert drainage system. A Final Hazardous Waste Facility Post-Closure Permit Modification No. 2 was issued by the Department of Toxic Substances (DTSC) on 7 June 1995 to update, modify and reformat the Hazardous Waste Facility Post-Closure Permit. The permit authorizes the Discharger to conduct post-closure maintenance, ground water monitoring, and corrective action for ground water contamination with respect to WMU A.

5. The discharger proposed the operation of a composting facility in a Report of Waste Discharge dated 26 April 1996. Waste Discharge Requirements for the composting facility were waived, in accordance with Resolution No. 96-031, Conditional Waiver of Waste Discharge Requirements for Composting Operations, and with the conditions that the facility will be built and operated as described in the 26 April 1996 Report of Waste Discharge.
6. The discharge proposes an alternative to the prescriptive liner requirements of Chapter 15. The alternative design substitutes a Geosynthetic Clay Liner (GCL) for the prescriptive 2-foot thick compacted clay component of the liner system. The Discharger also demonstrated that the design was in accordance with the Subsections 2510(b) and (c) of Article 1. Subsections 2510(b) and (c) describe the Board's authority to consider alternatives to construction or prescriptive standards. The Discharger demonstrated that the engineered alternative is feasible and consistent with the performance goal and affords equivalent protection against water quality impairment.
7. In the Spring of 1994, the Discharger constructed a temporary Soil Remediation Pad (SRP), consisting of one-foot of compacted clay, which was used to bioremediate petroleum (diesel and oil) contaminated soil from late May through September 1994 and 1995. In September of those years, all of the soil undergoing treatment and about 3-4 inches of the compacted clay liner were removed from the SRP and placed in the WMUs. The SRP was scheduled to be closed, however, the Discharger is now proposing to reuse, not close the SRP. Petroleum contaminated soils currently stockpiled in WMU G at the landfill will be treated on the SRP in future years. The Discharger proposes to continue using this SRP. The SRP is only operated in the dry months during fair weather and is not currently encroaching on any operational WMUs.
8. Waste management units at Forward are described in the following table. The acreage shown (213 acres) is greater than the size of the property (157 acres) because some units overlap.

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Unit, (area)	Area, acres	Classification	Description of Unit	Status
A	8.0	Class I landfill	Four trenches with compacted clay liner and dendritic LCRS. Built 1973. Contains designated and hazardous waste.	Postclosure maintenance and monitoring. RCRA closure completed in 1989. Stopped receiving wastes in 1984.
B-North	2.8	Class III landfill	Unlined. Construction debris and inert waste. Built 1978.	Temporarily inactive since 1986
B	12.1	Class III landfill	Unlined. Nonhazardous solid waste	Temporarily inactive since 1986
C	3.9	Class III landfill	Compacted clay liner on floor, dendritic LCRS. Built 1984 at south end of WMU A.	Temporarily inactive
D-87	2.5	Class III landfill	2-foot compacted clay liner on floor, dendritic LCRS. Built 1987.	Temporarily inactive
D-88 N	4.6	Class III landfill	4-foot compacted clay liner on floor, dendritic LCRS.	Operating
D-88 S	1.5	Class III landfill	4-foot compacted clay liner on floor, dendritic LCRS. For non-acid leachate generating waste.	Operating
D-89	3.5	Class III landfill	4-foot compacted clay liner, blanket LCRS.	Operating
D-93	4.6	Class II landfill	Composite liner with 2-feet of compacted clay, 60-mil HDPE liner, blanket LCRS.	Operating
D-94	2.5	Class II landfill	Composite liner with GCL as engineered alternative in lieu of 2-feet of clay, 60-mil HDPE, blanket LCRS (geocomposite drainage net)	Operating
D-95	9.0	Class II landfill	Composite liner with 2-feet of compacted clay, 60-mil HDPE liner, blanket LCRS. Engineered alternative on the north side slope.	Operating
Future D units	38.5	Class II landfill	Composite liner with GCL as approved engineered alternative or 2-feet of compacted clay, HDPE liner, blanket LCRS.	Permitted. To be constructed as needed.
E	4.9	Class II landfill	2-foot compacted clay liner, blanket LCRS. For coal ash only	Operating. First phase known as Eastern Ash Pit

Unit, (area)	Area, acres	Classification	Description of Unit	Status
F- Interim	1.46	Class II surface impoundment	Single compacted clay liner. To be replaced by 2 new impoundments as landfill units expand. Built 1988.	Operating. For landfill leachate only.
F- North	5.6	Class II surface impoundment	Designed to meet Class II standards. A GCL is an approved engineered alternative to the prescriptive clay liner component.	Proposed for construction north of Littlejohns Creek.
F-South	2.6	Class II surface impoundment	Designed to meet Class II standards. A GCL is an approved engineered alternative to the prescriptive clay liner component.	Proposed for construction south of Littlejohns Creek for leachate from WMU H.
G- North	51.6 max.	Class II land treatment unit	For treatment of soils contaminated with petroleum hydrocarbons and other approved compounds. Includes soil storage and clay lined sludge drying areas.	Operating. 51.6 acres currently available for WMU G-North
G92- 1,2,3 and 4	1.8	Class II waste piles	Four adjacent units with 40-mil PVC liner (base), blanket LCRS, compacted clay liner (top), upper LCRS, and operations layer.	Clean closed April 1995.
G- South	27.5 max.	Class II land treatment unit	Same design as G-North and/or composting pad containment system	Operating as transfer station, resource recovery facility, and Green Waste composting facility; proposed for construction of Composting Facility and/or future Class II Landfill Treatment Unit.
H	24.9	Class II landfill	Same as Future D units	Proposed for construction south of Littlejohns Creek.

### WASTES AND THEIR CLASSIFICATION

9. The Discharger proposes to discharge wastes classified under Chapter 15 as designated waste, nonhazardous solid waste and inert waste to the Class II landfill units. The Class III landfill units will only receive wastes classified as nonhazardous solid waste and inert waste. Designated and nonhazardous solid wastes include, but are not limited to, asbestos, commercial and industrial waste, municipal solid waste, coal and wood ash, contaminated soils, salty wastes, construction and demolition waste, shredder waste and dewatered sewage sludge. The contaminated soils may include, but are not limited to, treated and untreated petroleum products, metals or other constituents.

10. The Discharger proposes to discharge wastes containing greater than one percent (>1%) friable asbestos in WMUs D and H. These wastes are classified as 'hazardous' under Title 22 of CCR. However, because these wastes do not pose a threat to ground water quality, Section 25143.7 of the Health and Safety Code permits their disposal in any landfill which has waste discharge requirements that specifically permit the discharge, provided that the wastes are handled and disposed of in accordance with applicable statutes and regulations.
11. DTSC has granted shredder waste a variance, for the purposes of disposal, from hazardous waste management requirements pursuant to Title 22 of the CCR. Shredder waste is any non-recyclable waste which results from the shredding of automobile bodies (from which batteries, mufflers, and exhaust pipes have been removed), household appliances, and sheet metal.
12. 'Hazardous waste' which has received a variance from DTSC for the purposes of disposal is classified as a 'designated waste' pursuant to Section 2522 of Chapter 15.
13. The Discharger proposes to discharge shredder waste to WMUs D and H equipped with composite liners.
14. The Discharger proposes to discharge dewatered sewage and water treatment sludges to WMUs D and H equipped with composite liners. Sludges dried to greater than 50 percent solids may also be discharged to portions of WMU D with clay liners.
15. The Discharger accepts soils contaminated with less than hazardous levels of petroleum hydrocarbons. These soils are either treated in the land treatment unit, WMU G, or discharged to the Class II landfill units. The Discharger has demonstrated that soil contaminated with less than hazardous levels of petroleum hydrocarbons can be transformed to a 'nonhazardous solid waste' in the treatment unit.
16. Leachate from the landfill units and liquid wastes described in Discharge Specification B.6 are proposed for discharge to WMU F, a Class II surface impoundment. These wastes are classified as 'designated wastes' using the criteria set forth in Chapter 15. The location of WMU F as shown on Attachments B and C is tentative and may be changed. This final location will be specified in WMU F design and construction specifications that will be submitted to the Board for approval.

#### DESCRIPTION OF SITE

17. Land within 1,000 feet of the site is primarily used for agriculture. The City of Stockton's municipal solid waste landfill is about 1000 feet north of the Forward facility. The City of

Stockton proposes to expand its facility to include the property adjacent to Forward's northern boundary.

18. The shallow ground water beneath the site is contained in the Victor Formation. These sediments generally have moderate permeabilities with locally high permeabilities in the sandy and gravelly lenses. Ground water in the Victor Formation is unconfined and flows in a north-northeasterly direction beneath the site. Locally, ground surface is about 40 feet in elevation. The regional ground water table is about 60 to 70 feet below ground surface or -20 to -30 feet in elevation. The quality of this water is suitable for domestic or agricultural use.
19. Low levels of volatile organic compounds (VOCs) have been found in monitoring wells (MWs) at the facility beginning in June 1988. Wells MW-2B, MW-3B, MW-5B, and MW-13B have been impacted by a release of VOCs from the landfill. These VOCs included halogenated compounds such as trichloroethane, tetrachloroethane, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethane, cis-1,2-dichloroethane, chloroethane and dichlorodifluoromethane in concentrations between 0.7 and 3.6 µg/l. Phenolics (total phenols) were reported in wells MW-12B, MW-27 and MW-20 at levels between 10 and 20 µg/l. Other aromatic VOCs including benzene, toluene and xylenes were also found in ground water samples. Stiff Diagrams indicate that the downgradient water chemistry in the vicinity of MW-2B and MW-18 had higher relative concentrations of chloride than the other wells during 1994. The total concentration of ions was generally higher in MW-2B and to a lesser degree MW-5B and MW-13B, than the other wells. Overall, there are sporadic occurrences of organics at low concentrations in a few wells, except for MW-2A/2B and MW-5A/5B where two to three compounds have been detected consistently. In 1994, there were fewer detections of halogenated compounds in the wells and the concentrations were generally much lower than previous years.
20. The beneficial uses of ground water are municipal, domestic, agricultural, and industrial supply.
21. The site receives an average of 14.27 inches of precipitation per year based on precipitation data from the Stockton WBAP Station number B00-8560 approximately 8 miles northwest of the site. The mean evaporation for this site is 78.43 inches per year as measured at Oakdale Woodard Reservoir between the years 1919 and 1968. Based on these data, average annual net evaporation at the site is 64.16 inches.
22. The 1,000-year, 24-hour precipitation event for the site is 4.11 inches. The 100-year, 24-hour precipitation event is 3.25 inches. The estimated 100-year annual precipitation is 25.42 inches.

23. The site is not within a 100-year floodplain as shown on Federal Insurance Rate Map for San Joaquin County, dated 15 May 1980.
24. Surface drainage is to the South Fork of South Littlejohns Creek, which is tributary to South Littlejohns Creek, which flows into Littlejohns Creek, tributary to French Camp Slough, hence San Joaquin River and the Delta.
25. The beneficial uses of these surface waters are recreation, aesthetic enjoyment, and preservation and enhancement of fish, wildlife and other aquatic resources.
26. There are no known Holocene faults within 200 feet of the Forward facility. The closest active fault is the Greenville Fault which is approximately 28 miles west-southwest of the site. The Discharger estimates the highest local ground acceleration would come from an earthquake on the Midland fault 24 miles west of the site where the most recent displacement is estimated to be early Oligocene (35 million years ago). A maximum credible earthquake of magnitude 7.0 on the Midland fault would produce a ground acceleration of 0.18 g at the facility.

#### OPERATION OF FACILITIES

27. The Discharger proposes to increase waste receipts to an average rate of 3,800 tons per day with a peak daily rate of 4,180 tons per day.
28. The transfer station/resource recovery facility is south of Littlejohns Creek. The Discharger proposes to expand this facility from 12,000 square feet to 50,000 square feet. Processed materials include baled cardboard and paper, ferrous and nonferrous metals, glass, plastic and wood. Recovered wastewood, lumber, and brush are placed in a wood waste stockpile area, ground and processed in a wood grinder, then hauled off-site. Other recovered materials are stored on-site and shipped to market as needed. Remaining unrecyclable wastes are landfilled.
29. The Discharger proposes to operate the Composting Facility in accordance with the operations procedures contained in the Report of Waste Discharge dated 26 April 1996. The Discharger proposes to use the end products of the composting process as a topsoil amendment, mulch, or a soil conditioner for various applications. The composted material may also be used in the landfill as an alternative daily cover material.
30. The Discharger plans to expand the landfill units in five general phases with construction of modules within each phase. Future expansion north of the south fork of South Littlejohns Creek will be in WMU D with each module identified with the year of

construction (e.g., WMU D93). The vertical expansion of WMU D over WMUs B, C, D87, D88N, D88S, D89, and Eastern Ash Disposal Pit WMU E occurs in Phase II. The lateral expansion of WMU D to the west happens in Phase III. The filling of WMU D to final grades occurs in Phase IV. The construction of WMU H, the landfill unit south of Littlejohns Creek, occurs in Phase V. The phases will not necessarily be completed sequentially.

31. The active life of Forward landfill facility is estimated to be 13 years based on refuse capacity of 9.4 million cubic yards and a refuse fill rate of 3,800 tons per day, 312 days per year and an in-place density of 1250 pounds per cubic yard. WMU D has an estimated refuse capacity of 10.1 million cubic yards and a service life of 11 years. WMU H will have a refuse capacity of 1.78 million cubic yards and an estimated service life of two years. The estimated service life of the units is based on disposal rates and will change if disposal rates are significantly different than predicted.
32. WMU E, the coal ash landfill unit, has a design capacity of 520,000 cubic yards.
33. Petroleum contaminated soils are treated in WMU G, a Class II land treatment unit. Contaminated soils are also stored in the WMU G area prior to treatment. Stored soils are kept in piles and covered with plastic sheeting until they are spread for treatment. Following treatment, the soils are used as daily or intermediate cover in compliance with Title 14 regulations, or discharged to WMU D or H. WMUG may be moved to a new location on the facility as landfill WMUs are built, as shown on Attachment B.

## DESIGN OF WASTE MANAGEMENT UNITS

### Engineered Alternatives

34. Section 2510 of Chapter 15 requires the submittal of a demonstration that a prescriptive standard is not feasible because it is unreasonably and unnecessarily burdensome or impractical. The engineered alternative must afford equivalent protection against water quality impairment. The Discharger provided the demonstrations required by Section 2510 in its Waste Discharge Requirements Revisions and Technical Equivalency Report dated 4 December 1995. Furthermore, the Board has routinely approved the substitution of geosynthetic clay liners (GCLs) for field constructed clay liners at other sites since March and there are no significant differences in the characteristics of already approved liners and the liners proposed for this facility.



### Landfills

35. The containment features of existing landfill units are described in Finding 8. Starting with WMU D-93 and all future landfill units in WMU D (including those which overlie existing landfill units) and WMU H, the liner design is proposed to meet RCRA Subtitle D and Chapter 15 Class II landfill requirements. These landfill units will include a composite liner overlain by a blanket LCRS. The composite liner includes at least two feet of compacted soil with a permeability of  $10^{-7}$  cm/s or a geosynthetic clay liner (GCL) overlain by a geosynthetic liner at least 40 mil in thickness (minimum 60 mil if HDPE). The clay liner is generally constructed from native soil mixed with imported clay because native soils alone do not meet the permeability requirement. The blanket LCRS consists of either a one-foot thick layer of gravel or a geosynthetic drainage net (GDN). Where the liner of a Class II landfill overlaps waste in an older Class III unit, the composite liner system typically consists of GCL+HDPE+GDN. This interface liner is typically underlain by several feet of engineered fill to prevent differential settlement in underlying waste from affecting the liner system. An operations layer is placed over the liner system to prevent overlying waste from damaging it.

### Impoundments

36. The liner in the interim WMU F is currently a single clay liner that will be removed before leachate reaches the outer one foot of the liner. The final design for future liner systems in WMU F will be submitted prior to construction and will meet or exceed the requirements of Chapter 15. A GCL is an approved Engineered Alternative to the prescriptive outer clay liner component in the double liner option.

### CERTIFICATION

37. A certified engineering geologist certified in the October 1987 Report of Waste Discharge that WMUs C, D 87 and E meet the siting and construction requirements in Chapter 15. Design and construction certifications are provided for each additional unit or module as it is constructed.

### CEQA AND OTHER CONSIDERATIONS

38. The action to revise WDRs for this facility is exempt from the provisions of the California Environmental Quality Act, (Public Resources Code, Section 21000, et seq.), in accordance with Title 14, CCR, Section 15301.

39. This Order implements:
- a. the Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin, Third Edition;
  - b. the prescriptive standards and performance goals of Chapter 15, Division 3, Title 23 of the California Code of Regulations, effective 27 November 1984, and subsequent revisions;
  - c. the prescriptive standards and performance criteria of Part 258, Title 40 of the Code of Federal Regulations (Subtitle D of the Resource Conservation and Recovery Act); and
  - d. State Water Resources Control Board Resolution No. 93-62, Policy for Regulation of Discharges of Municipal Solid Waste, adopted 17 June 1993.

#### PROCEDURAL REQUIREMENTS

40. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.
41. The Board has notified the Discharger and interested agencies and persons of its intention to revise the waste discharge requirements for this facility.
42. In a public hearing, the Board heard and considered all comments pertaining to this facility and discharge.

**IT IS HEREBY ORDERED** that Order No. 94-014 is rescinded, and it is further ordered that Forward Incorporated and its agents, assigns and successors, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

#### A. DISCHARGE PROHIBITIONS

1. The discharge of 'hazardous waste' except for asbestos waste or shredder waste at this site is prohibited.
2. Discharges of waste to either a landfill unit that has not received wastes or to a lateral expansion of a landfill unit are prohibited, unless the discharge is to an area equipped with a containment system which meets requirements in **B. Specifications**, below.

3. The discharge to landfill units, other than WMU F, of liquid or semi-solid waste (i.e., waste containing less than 50 percent solids), except dewatered sewage or water treatment sludge as provided in Section 2523(c) of Chapter 15, is prohibited.
4. The discharge to landfill units of solid waste containing free liquid or moisture in excess of the waste's moisture holding capacity is prohibited.
5. The discharge of 'designated waste' to Class III landfill units is prohibited. For the purposes of this Order, 'designated waste' is as defined in Chapter 15 and described in Monitoring and Reporting Program No.97-141.
6. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses or to ground water is prohibited.
7. The unauthorized discharge of liquid waste from the surface impoundment is prohibited.
8. The discharge of waste to ponded water from any source is prohibited.
9. The discharge of waste within 50 feet of surface waters not related to landfill drainage structures is prohibited.
10. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products which in turn:
  - a. require a higher level of containment than provided by the unit;
  - b. are restricted 'hazardous wastes'; or
  - c. impair the integrity of containment structures

is prohibited.

#### B. DISCHARGE SPECIFICATIONS

##### GENERAL SPECIFICATIONS

1. Wastes shall be discharged only into WMUs specifically designed for their containment and/or treatment, as described in this Order. Class II landfills and waste piles shall include liner systems which prevent the movement of fluid, including waste and leachate from the

waste management units to waters of the State as long as waste in such units pose a threat to water quality.

2. Wastes shall not be discharged below an elevation of +7 feet above mean sea level (MSL). A minimum separation of 5 feet shall be maintained between wastes or leachates and the highest anticipated elevation of underlying ground water including the capillary fringe.
3. Only coal or wood ash from cogeneration plants shall be discharged to WMU E, a separate monofill unit which is designed and operated to isolate this waste from other wastes which could produce acidic leachate.
4. The handling and disposal of friable asbestos-containing wastes at this site shall be in accordance with all applicable federal and state laws and regulations.
5. Shredder waste, which has been granted a variance from disposal as 'hazardous waste' by DTSC, shall only be discharged to Class II landfill units at this site.
6. The discharge of liquid and semi-solid waste to the surface impoundments is limited to leachate from the landfill unit and surface impoundment leachate collection and removal systems (LCRSs), septage, chemical toilet waste, boiler blowdown water, grease trap pumpings, and other wastes that are compatible with the liner system and meet the approval of the Board.
7. The diversion of compostable wastes received at the Resource Recovery Facility (RRF) to the proposed Composting Facility is limited to the wastes described in the Report of Waste Discharge and the Revision and Technical Equivalency Report. The diversion of above wastes shall only occur to the Composting Facility Pad constructed and operated as required by these WDRs, Resolution No. 96-031, Conditional Waiver of Waste Discharge Requirements for Composting Operations, and the Report of Waste Discharge dated 26 April 1996.
8. These WDRs do not authorize the disposal or use of the bio-solid by-products from the composting operation off-site of the facility.
9. All wells within 500 feet of a waste management unit shall be sealed or abandoned to the satisfaction of the Public Health Services of San Joaquin County prior to the discharge of waste to the unit. A record of the sealing and/or abandonment of such wells shall be sent to the Board and to the State Department of Water Resources.

### GENERAL WMU CONSTRUCTION

10. All containment systems shall include a leachate collection and removal system (LCRS) which shall convey all leachate which reaches the liner to an appropriately lined sump or other appropriately lined collection area. The LCRS shall not rely upon unlined or clay-lined areas for such conveyance.
11. Clay liners shall have a hydraulic conductivity of  $1 \times 10^{-7}$  cm/sec or less and a minimum relative compaction of 90 percent. Landfill cap clay barrier layers shall have a hydraulic conductivity of  $1 \times 10^{-6}$  cm/sec or less and a minimum relative compaction of 90 percent. Hydraulic conductivities of liner materials shall be determined by laboratory tests using solutions with similar properties as the fluids that will be contained. Hydraulic conductivities of cap materials shall be determined by laboratory tests using water. Hydraulic conductivities determined through laboratory methods shall be confirmed by field testing in accordance with the Standard Provisions and Reporting Requirements as described in Provision E.1.
12. LCRSs shall be designed, constructed, and maintained to collect twice the anticipated daily volume of leachate generated by the WMU and to prevent the buildup of hydraulic head on the underlying liner at any time. The depth of fluid in any LCRS sump shall be maintained as low as feasible. The pump shall be operated as necessary to prevent excess accumulation of leachate in the sump.

### PROTECTION FROM STORM EVENTS

13. Precipitation and drainage control systems shall be designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff as follows:

<u>Classification</u>	<u>Storm Size</u>
Class I WMUs	Probable maximum precipitation
Class II WMUs	1,000-year, 24-hour
Class III WMUs	100-year, 24-hour

14. Waste management units shall be designed, constructed, and operated in compliance with precipitation and flood conditions contained in the Standard Provisions and Reporting Requirements referenced in Provision E.1, below.

15. Annually, prior to the anticipated rainy season, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the site and to prevent surface drainage from contacting or percolating through wastes.

#### LANDFILL SPECIFICATIONS

16. Municipal solid waste shall be discharged to either (1) that portion of a waste management unit which received wastes (i.e., that active portion of the waste management unit which is within the boundaries of the Existing Footprint), or (2) to an area equipped with a containment system which meets the additional requirements for both liners and leachate collection systems specified below.
17. All containment systems installed after 9 October 1993 shall either: (1) include a composite liner which consists of an upper synthetic flexible membrane component (synthetic liner or SL) and a lower component of soil. The SL shall be at least 40-mils thick (or at least 60-mils thick if of high density polyethylene) and shall be installed in direct and uniform contact with the underlying compacted soil component. The lower component shall be compacted soil that is at least two feet thick and that has an hydraulic conductivity of no more than  $1 \times 10^{-7}$  cm/sec (this specification is referred to as the Prescriptive Design); or (2) include a composite liner which consists of an upper SL and a lower GCL. The SL shall be at least 40-mils thick (or at least 60-mils thick if of high density polyethylene) and shall be installed in direct and uniform contact with the underlying GCL component (this specification is referred to as the Approved Engineered Alternative Design).
18. Containment systems installed in those portions of a landfill where an engineering analysis shows that sideslopes are too steep to permit construction of a stable composite liner that meets the prescriptive standards contained in either B.16. or B.17., above shall include an alternative liner on the sideslopes that both meets the performance criteria contained in 40 CFR 258.40(a)(1) and (c) and either: (1) is a composite liner and includes as its uppermost component a synthetic liner at least 40-mils thick (or at least 60-mils if high density polyethylene) that is installed in direct and uniform contact with the underlying materials; or (2) is not a composite liner, but includes a synthetic liner at least 60-mils thick (or at least 80-mils if of high density polyethylene) that is installed in direct and uniform contact with the underlying materials.

19. New landfill units and lateral expansions shall not be located in wetlands unless the discharger has successfully completed, and the Board has approved, all demonstrations required for such discharge under 40 CFR 258.12(a).
20. Dewatered sewage or water treatment sludge may be accepted for disposal if the sludge contains at least 20 percent solids (primary sludge) or 15 percent solids (secondary sludge), is mixed with refuse at a minimum solids-to-liquid ratio of 5:1 by weight and shall not exceed the initial moisture holding capacity of the solid waste.
21. Dewatered sewage or water treatment sludges shall only be landfilled in units equipped with composite liners.
22. The sump pump shall have a minimum design capacity equivalent to 120% of the leachate flow rate from a landfill unit LCRS. If leachate flow rates exceed the capacity of the pump, additional pumps may be added or the Discharger shall cease the discharge of sludges and other high-moisture wastes to the landfill unit. The Discharger shall notify the Board in writing within seven days and work with the Board towards an acceptable solution. Notification shall include a timetable for corrective action necessary to reduce leachate production.

#### SURFACE IMPOUNDMENT SPECIFICATIONS

23. New containment systems constructed for surface impoundments (WMUs F) shall meet Class II standards. The use of a GCL and a synthetic liner as a composite system is an approved Engineered Alternative to the prescriptive outer clay liner component in the double liner option.
24. Design and construction plans and specifications shall be submitted to the Board for approval before construction of any surface impoundment. After surface impoundment construction, a construction quality assurance report shall be submitted to the Board and approved by Board staff prior to operation of the surface impoundment.
25. The sump pump shall have a minimum design capacity equivalent to 120% of the leachate flow rate from the surface impoundment LCRS. If leachate flow rates exceed the capacity of the pump, additional pumps may be added or the Discharger shall cease the discharge of waste, excluding leachate, to the impoundment. The Discharger shall notify the Board in writing within seven days and work with the Board towards an acceptable solution. Notification shall include a timetable for remedial action to repair the upper liner of the impoundment or other action necessary to reduce leachate production.

### LAND TREATMENT UNIT SPECIFICATIONS

26. WMU G, a land treatment unit, may be sited at any point in the area described in Attachment B. WMU G may not overlay any existing elements of a WMU. Design and construction plans shall be submitted to Board staff for approval before construction of any land treatment unit.
27. As site conditions change, WMU G may be shifted to another point in the area described in Attachment B. The new location must be approved by Board staff.
28. Each old location of WMU G must be closed according to Chapter 15. Closure shall include testing of the old location for the parameters described in the land treatment section of Monitoring and Reporting Program No.97-141.
29. The maximum depth of the treatment zone shall not exceed five feet from the initial soil surface.
30. Treated soil from WMU G shall be used as alternative daily cover in compliance with Title 14, foundation material for final cover, or discharged to a landfill unit in compliance with this Order.
31. Soil piles stored in WMU G shall at all times be completely covered with a synthetic liner, except during treatment.
32. Soils containing contaminants other than petroleum hydrocarbons and BTEX (for example, chlorinated hydrocarbons) shall not be placed in WMU G without prior approval of the Executive Officer.
33. WMU G shall be graded so that storm water runoff is collected within the unit for appropriate disposal.

### WASTE PILE SPECIFICATIONS

34. Waste piles constructed for treatment of petroleum contaminated soils shall be within the area designated for WMU G. Design and construction plans and specifications shall be submitted to Board staff for approval before construction of any waste pile. After construction, a construction quality assurance report shall be submitted and approved by Board staff prior to operation of the waste pile.



### DRYING OPERATION SPECIFICATIONS

35. Sludges from water or wastewater treatment plants may be disposed of by spreading on a one foot thick, compacted clay pad that is bermed to prevent runoff. Sludges shall be handled in such a manner as to allow drying of the waste with no percolation of liquid or waste constituents through the bottom of the clay pad. Once the waste has dried, it and any soil it has contacted shall be moved to WMU D, or WMU H for disposal. The clay pad shall be rebuilt to its original thickness after each drying cycle. This operation may be done from May through October.

### WMU CLOSURE SPECIFICATIONS

#### Landfill Closure

36. At closure, each landfill unit shall receive a final cover consisting, at a minimum, of a two-foot thick foundation layer which may contain waste materials, overlain by either a one-foot thick clay barrier layer or a GCL, and finally by a one-foot thick vegetative soil layer. For landfill units which have a composite liner system, the final cover shall include a flexible membrane component (synthetic liner or SL) placed between the barrier layer and the vegetative layer.
37. Vegetation shall be planted and maintained over each closed landfill unit. Vegetation shall be selected to require a minimum of irrigation and maintenance and shall have a rooting depth not in excess of the vegetative layer thickness.
38. Closed landfill units shall be graded to at least a three percent grade and maintained to prevent ponding.

#### Surface Impoundment Closure

39. At closure of surface impoundments, all residual wastes, including liquids, sludges, precipitates, settled solids, and liner materials and adjacent natural geologic materials contaminated by wastes, shall be completely removed and discharged to a WMU approved by the Board. If after reasonable attempts to remove contaminated natural geologic materials, the Discharger demonstrates that removal of all remaining contamination is infeasible, the impoundment shall be closed as a landfill pursuant to Chapter 15 and specifications 36 through 38 above.

#### **Land Treatment Unit Closure**

40. During the closure and post-closure period, the Discharger shall continue all operations necessary to maximize degradation, transformation, or immobilization of waste constituents within the treatment zone, continue monitoring in compliance with this Order and Article 5 of Chapter 15, maintain precipitation and drainage control systems, and prevent runoff of waste constituents.

#### **Waste Pile Closure**

41. At closure of the waste piles, all waste materials and any components of the containment system which are contaminated by wastes shall be removed from the waste pile and discharged to an appropriate WMU. Remaining containment features shall be inspected for contamination and, if not contaminated, may be dismantled. Any soil or other materials beneath the closed waste pile that have been contaminated shall be removed for disposal at an appropriate waste management unit. If after reasonable attempts to remove contaminated natural geologic materials, the Discharger demonstrates that removal of all remaining contamination is infeasible, the waste pile shall be closed as a landfill pursuant to Specifications 35 through 37 above.

### **C. RECEIVING WATER LIMITATIONS**

#### **WATER QUALITY PROTECTION STANDARDS**

The concentrations of Constituents of Concern in waters passing through the Points of Compliance shall not exceed the Concentration Limits established pursuant to Monitoring and Reporting Program No. 97-141, which is attached to and made part of this Order.

### **D. FINANCIAL ASSURANCE**

The Discharger shall maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management units. The Discharger shall also maintain an irrevocable closure fund or other means to ensure adequate closure and post-closure maintenance of each waste management unit.

### **E. PROVISIONS**

1. The Discharger shall comply with the Standard Provisions and Reporting Requirements, dated September 1993, which are hereby incorporated into this Order. The Standard

Provisions and Reporting Requirements contain important provisions and requirements with which the Discharger must comply. A violation of any of the Standard Provisions and Reporting Requirements is a violation of these waste discharge requirements.

2. The Discharger shall comply with Monitoring and Reporting Program No. 97-141, which is attached to and made part of this Order. A violation of Monitoring and Reporting Program No. 97-141 is a violation of these waste discharge requirements.
3. The Discharger shall receive approval from Board staff before discharging waste to containment areas or WMUs constructed after the effective date of this Order. The Discharger shall submit to the Board all documentation (i.e., reports, plans, designs) required by this Order for review and approval by Board staff prior to implementation.
4. The Discharger shall provide proof to the Board **within sixty days after completing final closure** that the deed to the landfill facility property, or some other instrument that is normally examined during title search, has been modified to include, in perpetuity, a notation to any potential purchaser of the property stating that: (1) the parcel has been used as an MSWLF; (2) land use options for the parcel are restricted in accordance with the post-closure land uses set forth in the post-closure plan and in WDRs for the landfill; and (3) in the event that the Discharger defaults on carrying out either the post-closure maintenance plan or any corrective action needed to address a release, then the responsibility for carrying out such work falls to the property owner.
5. The Discharger shall maintain waste containment facilities and precipitation and drainage controls, and shall continue to monitor ground water, leachate from the landfill units, the vadose zone, and surface waters per Monitoring and Reporting Program No. 97-141 throughout the active life of the waste management units and the post-closure maintenance period.
6. The Discharger shall comply with all applicable provisions of 23 CCR Chapter 15 and 40 CFR Part 258 that are not specifically referred to in this Order.
7. The Discharger shall maintain a copy of this Order at the site and make it available at all times to site operating personnel.
8. The Discharger shall conduct the periodic load checking program as described in the Report of Waste Discharge. The load checking program shall ensure that 'hazardous wastes' and 'designated wastes' are not discharged to any Class III landfill at the facility and that 'hazardous waste' is not discharged to any Class II waste management unit. The

program shall also ensure that wastes exceeding moisture limitations are not discharged to landfill units.

9. The post-closure maintenance period shall continue until the Board determines that remaining wastes in all WMUs will not threaten water quality.
10. The Board will review this Order periodically and may revise requirements when necessary.
11. The Discharger shall remove and relocate any wastes discharged at this site in violation of this Order.

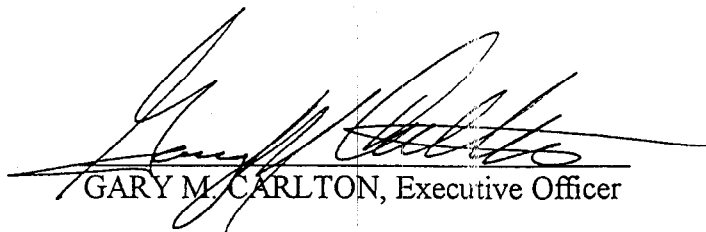
**F. REPORTING REQUIREMENTS**

1. The Discharger shall comply with the reporting requirements specified in this Order, in Monitoring and Reporting Program Order No. 97-141, and in the Standard Provisions and Reporting Requirements.
2. If new MSWLF units and lateral expansions are to be located in wetlands, the Discharger shall submit a report containing (a) a copy of the material considered by the U.S. Army Corps of Engineers in granting a Section 404 Permit for such discharge, (b) a copy of each Army Corps response to those submittals, and (c) any additional materials requested by the Board.
3. The Discharger shall submit a preliminary and/or final closure and post-closure maintenance plans (or submit suitable modifications to a preexisting plan) that comply with 40 CFR 258.60 and 258.61, Article 8 of Chapter 15, and with Title 14 of the CCR.
4. The Discharger shall notify the Board, in writing, of any proposed change in ownership or responsibility for construction or operation of the WMUs. The Discharger shall also notify the Board of a material change in the character, location, or volume of the waste discharge and of any proposed expansions or closure plans not described in these WDRs. This notification shall be given 120 days prior to the effective date of the change and shall be accompanied by an amended Report of Waste Discharge and any technical documents that are needed to demonstrate continued compliance with these WDRs.
5. In the event of any change in ownership of this disposal site, the Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Board.

WASTE DISCHARGE REQUIREMENTS  
FORWARD INC., FORWARD LANDFILL  
SAN JOAQUIN COUNTY

-21-

I, GARY M. CARLTON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 20 June 1997.



GARY M. CARLTON, Executive Officer

Attachments

SER:njs  
Amended

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. 97-141

FOR  
FORWARD INCORPORATED  
FORWARD LANDFILL  
CLASS II AND CLASS III LANDFILLS  
CLASS II LAND TREATMENT UNITS, CLASS II WASTE PILES  
CLASS II SURFACE IMPOUNDMENTS  
POSTCLOSURE OF CLASS I LANDFILL  
SAN JOAQUIN COUNTY

Ground water monitoring data indicate a release from landfill and/or other waste management units at this facility. Currently, ground water contaminant concentrations are near or below MCLs for several volatile organic compounds. The Discharger is evaluating ground water conditions and pollutant sources at the site. The Discharger previously capped WMU A, removed clay-lined liquid disposal ponds, and improved landfill cover, grading and drainage controls. Current data indicate contaminant concentrations are decreasing. The Discharger is preparing revised technical reports pursuant to Article 5 to formalize a corrective action program at the facility in addition to a detection monitoring program. Once the Discharger's technical reports are completed, both this monitoring program and the program required by Department of Toxic Substances Control (DTSC) as part of its postclosure permit for WMU A will be modified.

Compliance with this Monitoring and Reporting Program, and with the companion Standard Provisions and Reporting Requirements, is ordered by Waste Discharge Requirements Order No. 97-141. Failure to comply with this Program, or with the Standard Provisions and Reporting Requirements, constitutes noncompliance with the WDRs, its amendment, and Division 7 of the Water Code, and can result in the imposition of civil monetary liability.

**A. REPORTING**

The Discharger shall report monitoring data and information as required in the Monitoring and Reporting Program and as required in the Standard Provisions and Reporting Requirements.

Reports which do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the WDRs.

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements.

Quarterly, semiannual, and yearly monitoring reports shall be submitted to the Board by the **15th day** of the month following the calendar quarter in which the samples were taken.

The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Board.

## B. REQUIRED MONITORING PROGRAMS

### 1. Incoming Waste, Leachate and LCRS Monitoring Program

#### DESIGNATED AND NONHAZARDOUS SOLID WASTE MONITORING

The Discharger shall monitor all wastes discharged to the Class III landfill units and Class II land treatment unit, landfills and waste piles on a monthly basis and report to the Board as follows:

<u>Parameter</u>	<u>Report in Units of</u>	<u>Frequency of Reporting</u>
Quantity Discharged:		
Nonhazardous Solid Waste	Cubic Yards	Quarterly
Asbestos	Cubic Yards	Quarterly
Sewage and Wastewater	Gallons	Quarterly
Treatment Sludges		
Average % Solids	%	Quarterly
Where Waste Was Discharged	--	Quarterly
Source(s) of Material	--	Quarterly
Discharged		
Minimum Elevation of Discharge	Feet & Tenths, Mean Sea Level	Quarterly
Capacity of Landfill Unit Remaining	Percent	Yearly

When it is necessary to determine if a solid waste, including contaminated soil, is a 'designated waste', a Waste Extraction Test (WET) shall be run. The waste may be disposed of in a Class III landfill unit at this site only under the following conditions:

- a. If the concentrations of extractable constituents (expressed in mg/l of extract), as determined by the standard WET (CCR, Title 22, Division 4.5, Chapter 11), do not exceed the Maximum Concentrations specified below, the waste may be co-disposed with 'nonhazardous solid waste'.
- b. If the concentrations of extractable constituents (expressed in mg/l of extract), as determined by the WET run with deionized water in place of the standard citrate buffer, do not exceed the Maximum Concentrations specified below, the waste may be disposed of in a monofill dedicated to this solid waste, or in an area where the waste will not contact wastes capable of generating acidic leachate or landfill leachate, or be overlain by wastes capable of generating acidic leachate.

<u>Designated Level Parameter</u>	<u>Maximum Concentration in mg/l of WET Extract</u>
Cadmium	0.05
Chromium (VI)	0.5*
Copper	20
Lead	1.5
Mercury	0.02
Nickel	1.0
Zinc 200	

\* At the Discharger's discretion, may be met based on Total Chromium analyses.

The Designated Levels for petroleum contaminated soils are 100 mg/kg TPH Diesel by Modified EPA 8015 or equivalent method and nondetectable TPH Gasoline or BTXE.

Waste determined by the above procedures to exceed the Designated Levels shall be discharged to a Class II WMU.

#### SHREDDER WASTE MONITORING

Monitoring requirements for shredder waste accepted at Forward, Inc., are as follows:

<u>Parameter/Constituent</u>	<u>Report in Units of</u>	<u>Sampling Frequency</u>
PCBs	mg/kg	Every 1,000 tons*
Location of shredder waste disposal	--	Quarterly
Amount of shredder waste accepted	tons	Quarterly
BTX&E	mg/l or µg/l	Every 1,000 tons
Total Petroleum Hydrocarbons (TPH)	mg/kg	Every 1,000 tons

\* Or more frequently as required by the Department of Health Services.

Testing for PCBs shall be conducted using composite samples collected at the shredder facility. The samples shall be analyzed using EPA Method 8080.



### COAL AND WOOD ASH MONITORING

Monitoring requirements for coal and wood ash accepted at Forward, Inc., are as follows for each waste stream:

<u>Parameter/Constituent</u>	<u>Report in Units of</u>	<u>Sampling Frequency</u>
Amount of coal or wood ash discharged	Cubic Yards	Quarterly
EC* $\mu$ mhos/cm	Quarterly	
pH	pH Units	Quarterly
TDS*	mg/l	Quarterly
Metals (Inorganics in Attachment E)*	mg/l	Quarterly

\* Tests to be run on the extract generated by the Waste Extraction Test. Distilled water may be used in WET if ash is discharged to WMU E, the ash monofill.

Whenever the source of coal or wood ash or power plant configuration is changed, the above tests shall be run immediately to characterize the new ash.

### PETROLEUM CONTAMINATED SOILS MONITORING

Monitoring requirements for soils accepted for treatment in WMU G or direct disposal in any landfill unit are as follows:

<u>Parameter/Constituent</u>	<u>Report in Units of</u>	<u>Sampling Frequency</u>
Amount of soil	Cubic Yards	Every Lot*
Before acceptance:		
for Gasoline:	mg/kg	Every Lot
EPA 5030/8015 Modified		
EPA 5030/8020		
TTLc Pb		
for Diesel & Virgin Oil:	mg/kg	Every Lot
EPA 3550/8015 Modified		
EPA 5030/8020		
for Waste Oil	mg/kg	Every Lot
EPA 3550/8015 Modified		
EPA 5030/8015 Modified		
EPA 8260 (or 8010 & 8020)		
EPA 8270		
418.1 (TPH)		
TTLc Metals**: Cd, Cr, Pb, Ni, Zn (table continued)		

<u>Parameter/Constituent (continued)</u>	<u>Report in Units of</u>	<u>Sampling Frequency</u>
Aquatic 96-Hour Static Bioassay required if: Gasoline > 5,900 ppm; or Diesel > 20,000 ppm; or Motor or waste oil > 10,000 ppm.		Every Lot
After Treatment or Discharge:		
Final disposition of soil	--	Every Lot*

- \* The total amount of contaminated soil accepted from a site (gas station, pipeline spill, etc.) shall be defined as a lot. For every lot of soil, representative testing shall be conducted before the soil is accepted at Forward, Inc. If the lot can be treated all at once, then at least one sample shall be collected and tested to establish post-treatment organic contaminant values. If the lot must be split into groups for treatment, then at least one sample shall be collected from each group and tested for organic contaminants.
- \*\* The WET method shall be run if any total metal concentration exceeds the STLC or 10 times the Designated Level if waste is discharged to the Class III landfill.

Data from contaminated soil monitoring shall be organized in a tabular form and maintained by the Discharger as part of the operating record.

#### LIQUID AND SEMI-SOLID WASTE MONITORING

The Discharger shall monitor all wastes discharged to the Class II surface impoundment(s) on a daily basis and report to the Board as follows:

<u>Parameter</u>	<u>Report in Units of</u>	<u>Frequency of Reporting</u>
Quantity discharged	Gallons	Quarterly
Type of Material Discharged	--	Quarterly
Source(s) of Material Discharged	--	Quarterly
Minimum Freeboard	Feet and Tenths	Quarterly

In addition, grab samples of impoundment contents shall be taken and analyzed for the parameters and constituents listed below under "LEACHATE MONITORING" at the frequencies indicated thereunder.

### LEACHATE MONITORING

All landfill unit and surface impoundment LCRS sumps shall be inspected weekly for leachate generation. Upon detection of leachate in a previously dry LCRS, the Discharger shall immediately sample the leachate and shall continue to sample the leachate semiannually thereafter. Leachate samples shall be analyzed for the following: all constituents listed in Attachment E, and the following additional constituents: dissolved or total organic carbon, dissolved iron, carbonate, bicarbonate, alkalinity, dissolved aluminum, dissolved chromium VI, and dissolved manganese. The quantity of leachate pumped from each sump shall be measured continuously and reported as Leachate Volume (in gallons/month).

### LCRS MONITORING

All LCRSs shall be tested annually to demonstrate operation in conformance with waste discharge requirements. The results of these tests shall be reported to the Board and shall include comparison with earlier tests made under comparable conditions.

## 2. Detection Monitoring Program (DMP)

For each monitored medium, all Monitoring Points assigned to detection monitoring, and all Background Monitoring Points shall be monitored once each calendar quarter for the Monitoring Parameters listed in this Program.

For any given monitored medium, a sufficient number of samples shall be taken from all Monitoring Points and Background Monitoring Points to satisfy the data analysis requirements for a given Reporting Period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.

Ground water sampling shall also include an accurate determination of the ground water surface elevation and field parameters (pH, temperature, electrical conductivity, turbidity) for that Monitoring Point or Background Monitoring Point. Ground water elevations taken prior to purging the well and sampling for Monitoring Parameters shall be used to fulfill the ground water gradient/direction analyses required. For each monitored ground water body, the Discharger shall measure the water level in each well and determine ground water gradient and direction at least quarterly, including the times of expected highest and lowest elevations of the water level for the respective ground water body. Ground water elevations for all background and downgradient wells for a given ground water body shall be measured within a period of time short enough to avoid temporal variations in ground water flow which could preclude accurate determination of ground water gradient and direction. This information shall be included in the quarterly monitoring reports.

Statistical or non-statistical analysis shall be performed as soon as the monitoring data are available.

### 3. Constituents-of-Concern 5 Year Monitoring Program

In the absence of evidence of a release being indicated, the Discharger shall monitor all Constituents of Concern as follows:

The Discharger shall sample all Monitoring Points and Background Monitoring Points for each monitored medium for all COCs every fifth year, beginning with the winter of 1995 (first Reporting Period ends 31 March 1995), with subsequent COC monitoring efforts being carried out every fifth year thereafter alternately in the summer (Reporting Period ends 30 September) and winter (Reporting Period ends 31 March).

#### C. WATER QUALITY PROTECTION STANDARD

The Water Quality Protection Standard (Standard) shall consist of the following elements:

1. Constituents of Concern;
2. Concentration Limits;
3. Monitoring Points;
4. Points of Compliance;
5. Compliance Period.

In addition to these elements, Monitoring Parameters shall also be established.

#### 1. Constituents of Concern

- a. For landfills lacking a functioning LCRS:

For any landfill that does *not* have both a liner and a leachate collection and removal system (LCRS) that produces leachate:

- (1) The "COC list" (list of Constituents of Concern required under 23 CCR 2550.3) shall include all constituents listed in Attachment E, and the following additional COCs: dissolved or total organic carbon, dissolved iron, carbonate, bicarbonate, alkalinity, dissolved aluminum, dissolved chromium VI, and dissolved manganese. The discharger shall monitor all COCs every five years.
- (2) For each Attachment E constituent that is newly added to the landfill's COC list due to this order, the Discharger shall establish a reference background value by analyzing at least one sample each quarter from each Background Monitoring Point for a period of at least one year, beginning with the date of this Program. Once this reference set of background data is collected, the Discharger shall include it as a separate, identified item in the next monitoring report submittal.

b. For WMUs having a functioning LCRS:

For any WMU equipped with both a liner and a leachate collection and removal system (LCRS) that produces leachate:

(1) The COC list shall include:

- (a) all waste constituents listed in the waste discharge requirements as of the effective date of this Order; and
- (b) each Attachment E constituent that is not already a COC for the WMU, and that both:
  - i. is detected in a sample of the WMU's leachate which the discharger shall collect during Fall of each year; and
  - ii. is also detected in a retest leachate sample collected the following Spring. The discharger need take and analyze this retest sample only in cases where the annual leachate sample, taken the previous Fall under this section, identifies new-COCs. The retest sample shall be analyzed only for the new-COCs detected in the Fall sample; and
- (c) the following additional COCs: dissolved or total organic carbon, dissolved iron, carbonate, bicarbonate, alkalinity, dissolved aluminum, dissolved chromium VI, and dissolved manganese.

- (2) For each Attachment E constituent that is newly added to the WMU's COC list, the discharger shall establish a reference background value in each monitored medium by analyzing at least one sample each quarter from each Background Monitoring Point for a period of at least one year following the date the constituent is submitted to the Board as a new COC. Once this reference set of background data is collected, the discharger shall include it as a separate, identified item in the next monitoring report submittal.

For sites which have multi-unit detection monitoring systems, if any landfill unit lacks a functioning LCRS, COCs shall be determined as above under "a. *For MSWLFs lacking a functioning LCRS*".

The discharger shall monitor all COCs every five years.

## 2. Concentration Limits

The Concentration Limit for any given Constituent of Concern or Monitoring Parameter in a given monitored medium (e.g., the uppermost aquifer) at a shall be as follows, and shall be used as the basis of comparison with data from the Monitoring Points in that monitored medium:

- a. The background value established in the WDRs by the Board for that constituent and medium;
- b. The constituent's background value, established anew during each Reporting Period using only data from all samples collected during that Reporting Period from the Background Monitoring Points for that monitored medium. Either:
  - (1) The mean (or median, as appropriate) and standard deviation (or other measure of central tendency, as appropriate) of the constituent's background data; or
  - (2) The constituent's MDL, in cases where less than 10% of the background samples exceed the constituent's MDL; or
- c. A concentration limit greater than background, as approved by the Board for use during or after corrective action.

### 3. Monitoring Points

#### SURFACE WATER MONITORING POINTS

Surface water flows from on and around WMUs shall be sampled at the point(s) where they leave the facility boundary, during the first storm of the rainy season which produces significant flows.

#### GROUND WATER MONITORING POINTS

Well No.	Elevation of Top of Screen	Elevation of Bottom of Screen	Comments (Locations shown on Attachment D)
MW-1	-9.51	-29.51	Downgradient from WMU A/B/C/D complex
MW-1B	-21.36	-45.36	
MW-2A	-20.62	-40.62	Downgradient from WMU A/B/C/D complex
MW-2B	-35.73	-55.73	
MW-3	-10.49	-30.49	Downgradient from WMU A/B/C/D complex
MW-3B	-27.21	-47.21	
MW-5	NA	NA	Between WMU B and creek -Abandoned-
MW-5A	-15.62	-35.62	-Abandoned-
MW-5B	-30.73	-50.73	-Abandoned-
MW-6	-7.02	-27.02	Upgradient from WMU A/B/C/D -Abandoned-
MW-8	-46.23	-56.23	Upgradient from WMU A/B/C/D -Abandoned-
MW-10	-57.17	-67.17	Downgradient from WMU A/B/C/D complex
MW-11	-8.91	-28.91	Downgradient from WMU E -Abandoned-
MW-12	-12.17	-32.17	Upgradient of WMU E -Abandoned-
MW-12B	-28.69	-48.69	-Abandoned-
MW-13	-21.23	-41.23	Downgradient from WMU A/B/C/D complex
MW-13B	-36.42	-56.42	

### GROUND WATER MONITORING POINTS(continued)

Well No.	Elevation of Top of Screen	Elevation of Bottom of Screen	Comments (Locations shown on Attachment D)
MW-14	-21.34	-41.34	Downgradient from WMU A/B/C/D complex
MW-14B	-36.36	-56.36	
MW-15	-22.68	-42.68	Downgradient from WMU A/B/C/D complex
MW-16	--	--	Downgradient from WMU B/C/D complex
MW-17	-25.90	-48.40	Downgradient from Future D Area
MW-18	-26.28	-49.28	Downgradient from WMU G pads & Future D Area
MW-19	-26.13	-48.88	Downgradient from WMU D-93
MW-20	-26.88	-50.38	Upgradient from Future D area
MW-21	--	--	Downgradient of WMU B
MW-22	-26.88	-50.38	Upgradient from Future H area

### VADOSE ZONE MONITORING POINTS

Lysimeter No.	Comments (Locations shown on Attachment D)
LY-A	10 feet below sump of Trench 1, WMU A
LY-E1	8 feet below sump of eastern most pit of WMU E
LY-E2	
LYBG-1	Gathers background samples, south of creek
LYBP-1	Beneath WMU G92
LYBP-2	
LYBP-3	
LY-D93	Under sump of WMU D93
LY-1F	Under Interim F Surface Impoundment

#### 4. Points of Compliance

The Points of Compliance for surface water are the downstream sampling points identified above for surface water monitoring points. The Points of Compliance for ground water are the downgradient wells identified above for ground water monitoring points. The Points of Compliance for vadose zone monitoring program are the lysimeters identified above other than the background lysimeter.

#### 5. Compliance Period

The Compliance Period for the facility shall be the number of years equal to the active life of the facility plus the closure period. Each time the Standard is exceeded (i.e., a release is discovered), the facility begins a Compliance Period on the date the Board directs the Discharger to begin an Evaluation Monitoring Program. If the Discharger's Corrective Action Program (CAP) has not achieved compliance with the Standard by the scheduled end of the Compliance Period, the Compliance Period is automatically extended until the facility has been

in continuous compliance for at least three consecutive years.

## 6. Monitoring Parameters

The Discharger shall analyze water samples from each water-bearing medium separately for the following Monitoring Parameters, and shall test the resulting data using either the statistical or non-statistical methods listed in the Standard Provisions (or alternative methods the Board finds meets the requirements of 23 CCR 2550.7(e)(6-10) and 40 CFR 258.53):

a. Parameters that use statistical methods:

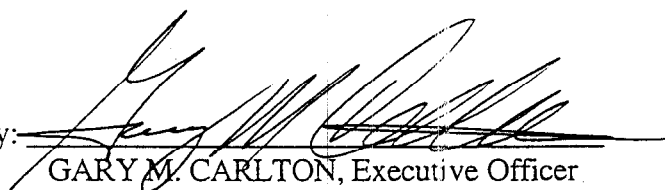
- (1) pH, total dissolved solids, specific conductivity, chloride, sulfate, and nitrate nitrogen;
- (2) Barium and strontium (an additional requirement for WMU A/B/C/D area monitoring points);
- (3) Each VOC listed in Attachment D that equals or exceeds its respective MCL in at least ten percent of the samples taken from the Background Monitoring Points for a monitored water-bearing medium (i.e., surface water body, aquifer, perched zone, or soil-pore liquid) during a given Reporting Period; and

b. Parameters that uses non-statistical method:

- (1) the composite monitoring parameter "VOC<sub>water</sub>", consisting of all VOCs listed in Attachment D; and
- (2) Purgeable total petroleum hydrocarbons and extractable total petroleum hydrocarbons are also required for WMU G monitoring points.

The Discharger shall implement the above monitoring program on the effective date of this Order.

Ordered by:

  
GARY M. CARLTON, Executive Officer

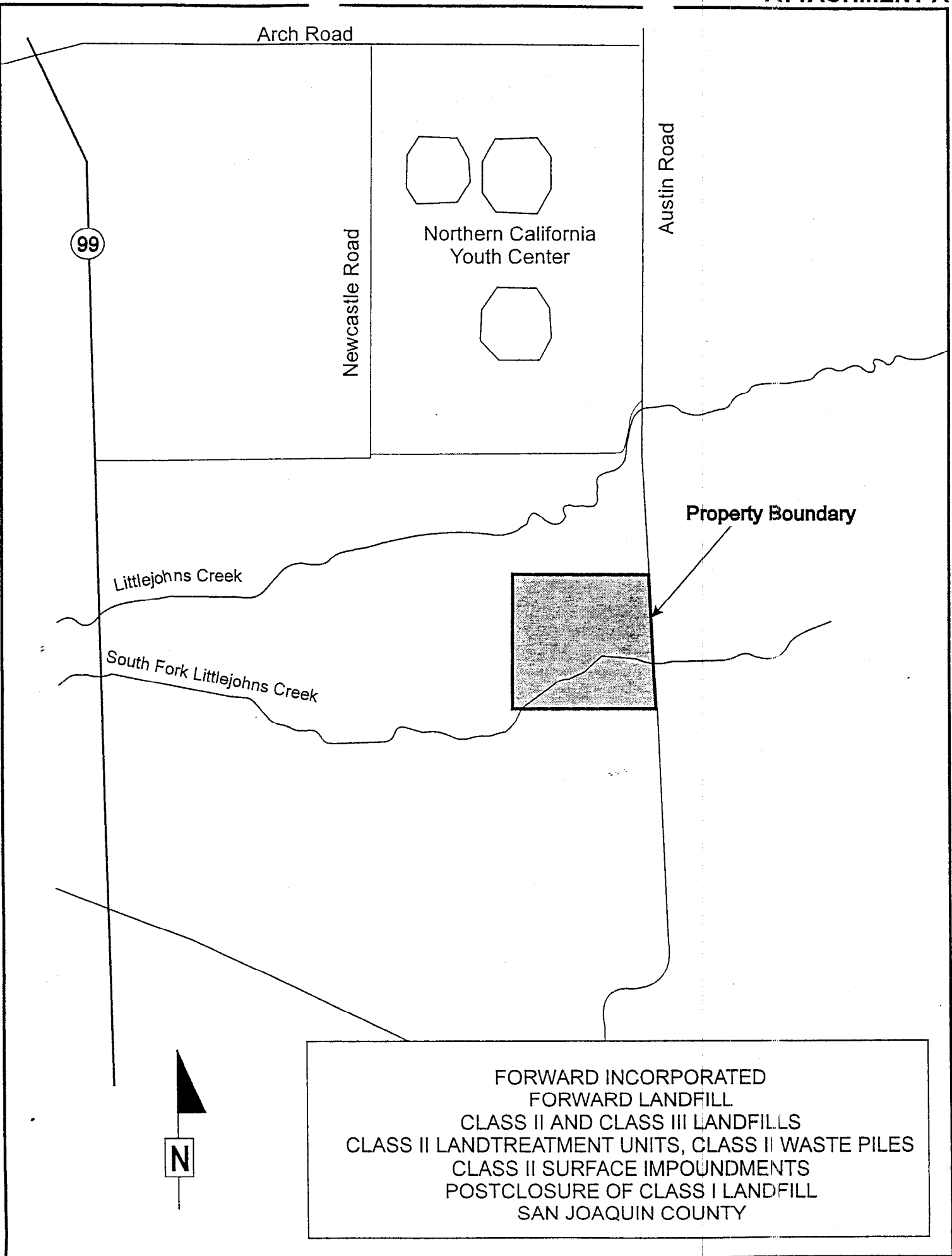
20 June 1997

(Date)

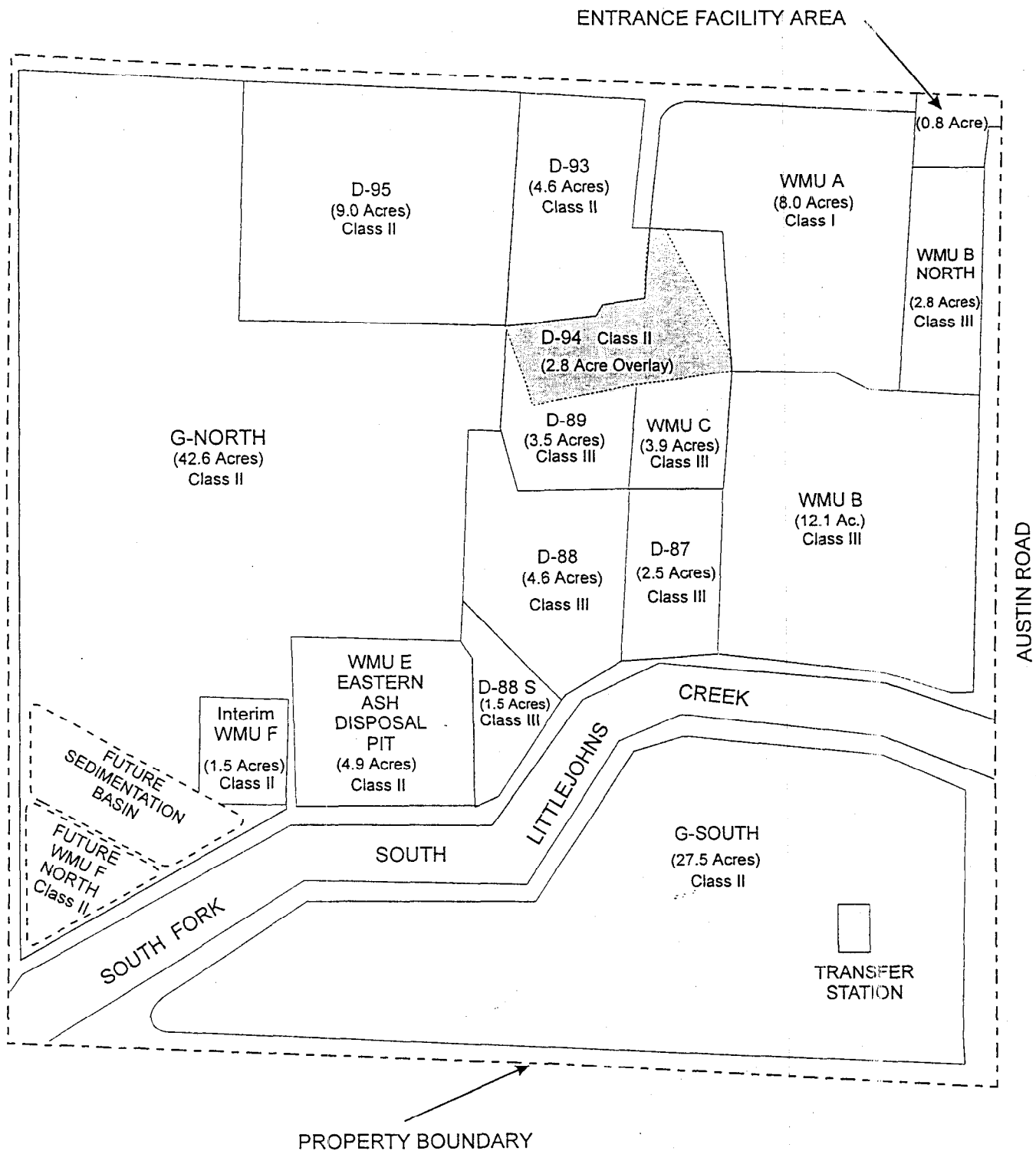
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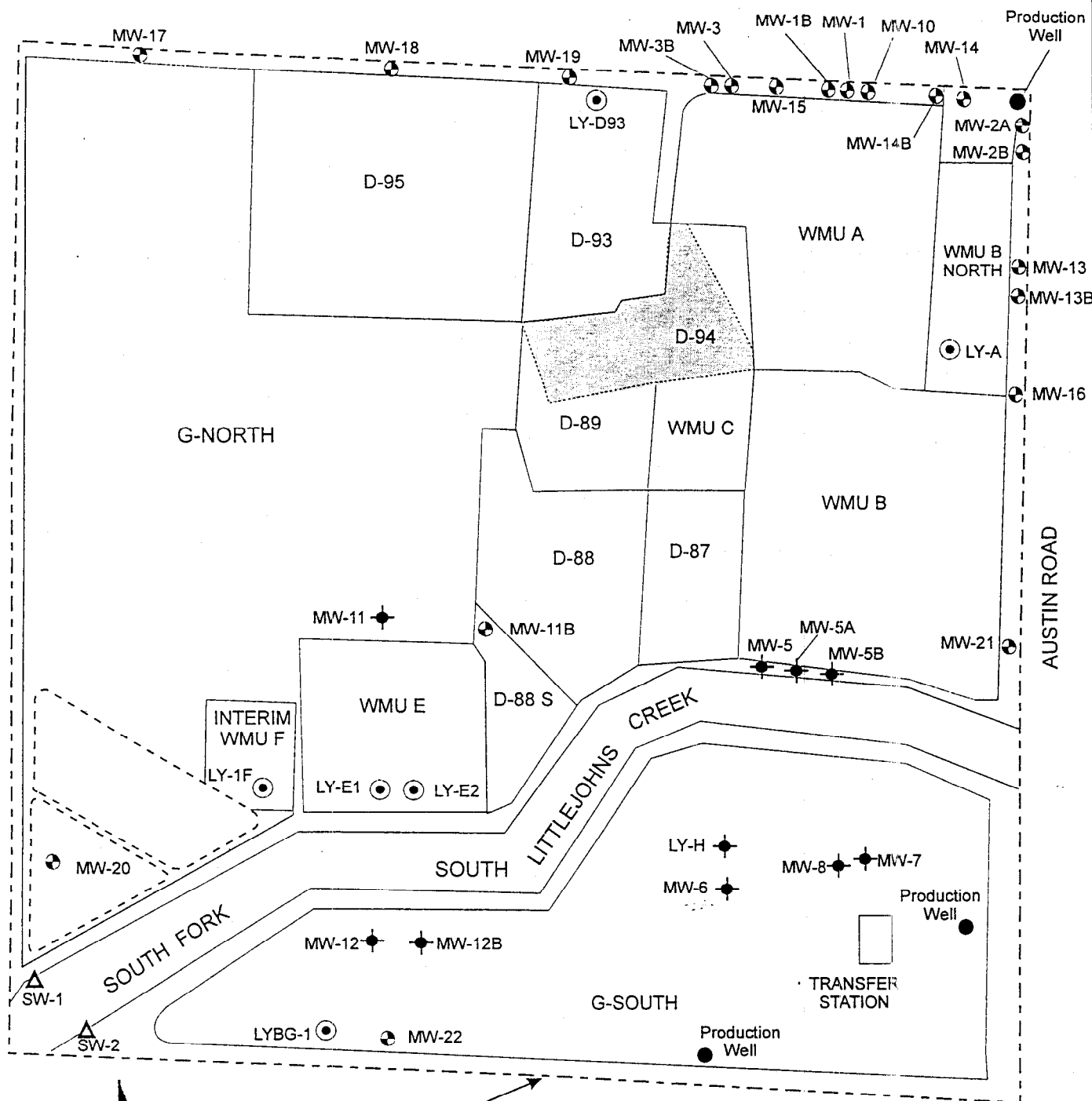


# ATTACHMENT B



FORWARD INCORPORATED  
 FORWARD LANDFILL  
 CLASS II AND CLASS III LANDFILLS  
 CLASS II LAND TREATMENT UNITS, CLASS II WASTE PILES  
 CLASS II SURFACE IMPOUNDMENTS  
 POSTCLOSURE OF CLASS I LANDFILL  
 SAN JOAQUIN COUNTY

# ATTACHMENT C



PROPERTY BOUNDARY

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FORWARD INCORPORATED  
FORWARD LANDFILL  
CLASS II AND CLASS III LANDFILLS  
CLASS II LAND TREATMENT UNITS, CLASS II WASTE PILES  
CLASS II SURFACE IMPOUNDMENTS  
POSTCLOSURE OF CLASS I LANDFILL  
SAN JOAQUIN COUNTY

- ▲ Surface Water Monitoring
- ✦ Abandoned Well
- ⊙ Monitoring Well
- ⊙ Lysimeter
- Production Well

WASTE DISCHARGE REQUIREMENTS  
FORWARD INC., FORWARD LANDFILL  
SAN JOAQUIN COUNTY

Attachment D

MONITORING PARAMETERS FOR DETECTION MONITORING

Surrogates for Metallic Constituents:

pH  
Total Dissolved Solids  
Specific Conductivity  
Chloride  
Sulfate  
Nitrate nitrogen

Constituents included in VOC<sub>water</sub> (by USEPA Method 8260):

Acetone  
Acrylonitrile  
Benzene  
Bromochloromethane  
Bromodichloromethane  
Bromoform (Tribromomethane)  
Carbon disulfide  
Carbon tetrachloride  
Chlorobenzene  
Chloroethane (Ethyl chloride)  
Chloroform (Trichloromethane)  
Dibromochloromethane (Chlorodibromomethane)  
1,2-Dibromo-3-chloropropane (DBCP)  
1,2-Dibromoethane (Ethylene dibromide; EDB)  
o-Dichlorobenzene (1,2-Dichlorobenzene)  
p-Dichlorobenzene (1,4-Dichlorobenzene)  
trans-1,4-Dichloro-2-butene  
1,1-Dichloroethane (Ethylidene chloride)  
1,2-Dichloroethane (Ethylene dichloride)  
1,1-Dichloroethylene (1,1-Dichloroethene; Vinylidene chloride)  
cis-1,2-Dichloroethylene (cis-1,2-Dichloroethene)  
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)  
1,2-Dichloropropane (Propylene dichloride)  
cis-1,3-Dichloropropene  
trans-1,3-Dichloropropene  
Ethylbenzene  
2-Hexanone (Methyl butyl ketone)  
Methyl bromide (Bromomethane)  
Methyl chloride (Chloromethane)  
Methylene bromide (Dibromomethane)  
Methylene chloride (Dichloromethane)  
Methyl ethyl ketone (MEK; 2-Butanone)  
Methyl iodide (Iodomethane)  
4-Methyl-2-pentanone (Methyl isobutylketone)  
Styrene  
1,1,1,2-Tetrachloroethane

Attachment D (continued)

1,1,2,2-Tetrachloroethane  
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)  
Toluene  
1,1,1-Trichloroethane (Methylchloroform)  
1,1,2-Trichloroethane  
Trichloroethylene (Trichloroethene)  
Trichlorofluoromethane (CFC-11)  
1,2,3-Trichloropropane  
Vinyl acetate  
Vinyl chloride  
Xylenes

WASTE DISCHARGE REQUIREMENTS  
FORWARD INC., FORWARD LANDFILL  
SAN JOAQUIN COUNTY

**Attachment E**

**CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS**

**Inorganics (by USEPA Method):**

Antimony	6010
Barium	6010
Beryllium	6010
Cadmium	6010
Chromium	6010
Cobalt	6010
Copper	6010
Silver	6010
Tin	6010
Vanadium	6010
Zinc	6010
Arsenic	7061
Lead	7421
Mercury	7470
Nickel	7520
Selenium	7741
Thallium	7841
Cyanide	9010
Sulfide	9030

**Volatile Organics (USEPA Method 8260):**

Acetone  
Acetonitrile (Methyl cyanide)  
Acrolein  
Acrylonitrile  
Allyl chloride (3-Chloropropene)  
Benzene  
Bis(2-ethylhexyl) phthalate  
Bromochloromethane (Chlorobromomethane)  
Bromodichloromethane (Dibromochloromethane)  
Bromoform (Tribromomethane)  
Carbon disulfide  
Carbon tetrachloride  
Chlorobenzene  
Chloroethane (Ethyl chloride)  
Chloroform (Trichloromethane)  
Chloroprene  
Dibromochloromethane (Chlorodibromomethane)  
1,2-Dibromo-3-chloropropane (DBCP)  
1,2-Dibromoethane (Ethylene dibromide; EDB)  
o-Dichlorobenzene (1,2-Dichlorobenzene)  
m-Dichlorobenzene (1,3-Dichlorobenzene)  
p-Dichlorobenzene (1,4-Dichlorobenzene)

Attachment E (continued)

trans-1,4-Dichloro-2-butene  
Dichlorodifluoromethane (CFC 12)  
1,1-Dichloroethane (Ethylidene chloride)  
1,2-Dichloroethane (Ethylene dichloride)  
1,1-Dichloroethylene (1,1-Dichloroethene; Vinylidene chloride)  
cis-1,2-Dichloroethylene (cis-1,2-Dichloroethene)  
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)  
1,2-Dichloropropane (Propylene dichloride)  
1,3-Dichloropropane (Trimethylene dichloride)  
2,2-Dichloropropane (Isopropylidene chloride)  
1,1-Dichloropropene  
cis-1,3-Dichloropropene  
trans-1,3-Dichloropropene  
Ethylbenzene  
Hexachlorobutadiene  
2-Hexanone (Methyl butyl ketone)  
Isobutyl alcohol  
Isodrin  
Methacrylonitrile  
Methyl bromide (Bromomethane)  
Methyl chloride (Chloromethane)  
Methyl ethyl ketone (MEK; 2-Butanone)  
Methyl iodide (Iodomethane)  
Methyl methacrylate  
4-Methyl-2-pentanone (Methyl isobutyl ketone)  
Methylene bromide (Dibromomethane)  
Methylene chloride (Dichloromethane)  
Naphthalene  
Propionitrile (Ethyl cyanide)  
Styrene  
1,1,1,2-Tetrachloroethane  
1,1,2,2-Tetrachloroethane  
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)  
Toluene  
1,2,4-Trichlorobenzene  
1,1,1-Trichloroethane, Methylchloroform  
1,1,2-Trichloroethane  
Trichloroethylene (Trichloroethene; TCE)  
Trichlorofluoromethane (CFC-11)  
1,2,3-Trichloropropane  
Vinyl acetate  
Vinyl chloride (Chloroethene)  
Xylene (total)

Attachment E (continued)

Semivolatile Organics (USEPA Method 8270 - base, neutral, & acid extractables):

Acenaphthene  
Acenaphthylene  
Acetophenone  
2-Acetylaminofluorene (2-AAF)  
Aldrin  
4-Aminobiphenyl  
Anthracene  
Benzo[a]anthracene (Benzanthracene)  
Benzo[b]fluoranthene  
Benzo[k]fluoranthene  
Benzo[g,h,i]perylene  
Benzo[a]pyrene  
Benzyl alcohol  
alpha-BHC  
beta-BHC  
delta-BHC  
gamma-BHC (Lindane)  
Bis(2-chloroethoxy)methane  
Bis(2-chloroethyl) ether (Dichloroethyl ether)  
Bis(2-chloro-1-methylethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)  
4-Bromophenyl phenyl ether  
Butyl benzyl phthalate (Benzyl butyl phthalate)  
Chlordane  
p-Chloroaniline  
Chlorobenzilate  
p-Chloro-m-cresol (4-Chloro-3-methylphenol)  
2-Chloronaphthalene  
2-Chlorophenol  
4-Chlorophenyl phenyl ether  
Chrysene  
o-Cresol (2-methylphenol)  
m-Cresol (3-methylphenol)  
p-Cresol (4-methylphenol)  
4,4'-DDD  
4,4'-DDE  
4,4'-DDT  
Diallate  
Dibenz[a,h]anthracene  
Dibenzofuran  
Di-n-butyl phthalate  
o-Dichlorobenzene (1,2-Dichlorobenzene)  
m-Dichlorobenzene (1,3-Dichlorobenzene)  
p-Dichlorobenzene (1,4-Dichlorobenzene)  
3,3'-Dichlorobenzidine  
2,4-Dichlorophenol  
2,6-Dichlorophenol  
Dieldrin  
Diethyl phthalate



Attachment E (continued)

p-(Dimethylamino)azobenzene  
7,12-Dimethylbenz[a]anthracene  
3,3'-Dimethylbenzidine  
2,4-Dimethylphenol (m-Xylenol)  
Dimethyl phthalate  
m-Dinitrobenzene  
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)  
2,4-Dinitrophenol  
2,4-Dinitrotoluene  
2,6-Dinitrotoluene  
Di-n-octyl phthalate  
Diphenylamine  
Endosulfan I  
Endosulfan II  
Endosulfan sulfate  
Endrin  
Endrin aldehyde  
Ethyl methacrylate  
Ethyl methanesulfonate  
Famphur  
Fluoranthene  
Fluorene  
Heptachlor  
Heptachlor epoxide  
Hexachlorobenzene  
Hexachlorobutadiene  
Hexachlorocyclopentadiene  
Hexachloroethane  
Hexachloropropene  
Indeno(1,2,3-c,d)pyrene  
Isophorone  
Isosafrole  
Kepone  
Methapyrilene  
Methoxychlor  
3-Methylcholanthrene  
Methyl methanesulfonate  
2-Methylnaphthalene  
Naphthalene  
1,4-Naphthoquinone  
1-Naphthylamine  
2-Naphthylamine  
o-Nitroaniline (2-Nitroaniline)  
m-Nitroaniline (3-Nitroaniline)  
p-Nitroaniline (4-Nitroaniline)  
Nitrobenzene  
o-Nitrophenol (2-Nitrophenol)  
p-Nitrophenol (4-Nitrophenol)  
N-Nitrosodi-n-butylamine (Di-n-butyl nitrosamine)

**Attachment E (continued)**

N-Nitrosodiethylamine (Diethylnitrosamine)  
N-Nitrosodimethylamine (Dimethylnitrosamine)  
N-Nitrosodiphenylamine (Diphenylnitrosamine)  
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)  
N-Nitrosomethylethylamine (Methylethylnitrosamine)  
N-Nitrosopiperidine  
N-Nitrosopyrrolidine  
5-Nitro-o-toluidine  
Pentachlorobenzene  
Pentachloronitrobenzene (PCNB)  
Pentachlorophenol  
Phenacetin  
Phenanthrene  
Phenol  
p-Phenylenediamine  
Polychlorinated biphenyls (PCBs; Aroclors)  
Pronamide  
Pyrene  
Safrole  
1,2,4,5-Tetrachlorobenzene  
2,3,4,6-Tetrachlorophenol  
o-Toluidine  
Toxaphene  
1,2,4-Trichlorobenzene  
2,4,5-Trichlorophenol  
2,4,6-Trichlorophenol  
0,0,0-Triethyl phosphorothioate  
sym-Trinitrobenzene

**Organophosphorus Compounds (USEPA Method 8141):**

0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)  
Dimethoate  
Disulfoton  
Methyl parathion (Parathion methyl)  
Parathion  
Phorate

**Chlorinated Herbicides (USEPA Method 8150):**

2,4-D (2,4-Dichlorophenoxyacetic acid)  
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)  
Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP)  
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)

## INFORMATION SHEET

### FORWARD INC., FORWARD LANDFILL SAN JOAQUIN COUNTY

Forward, Inc. owns and operates a waste management facility on Austin Road, seven miles southeast of the City of Stockton. The south fork of Littlejohns Creek traverses the southern portion of the 157-acre site. There are 23 existing or proposed waste management units (WMUs) at the facility. Order No. 94-014 classified landfill WMU D-93 and all future units in WMUs D and H as Class II landfills.

These waste discharge requirements approve the use of a geosynthetic clay liner (GCL) in place of two feet of compacted clay in the composite liner system for both landfill and surface impoundment waste management units. For landfill units, the GCL design is typically used for those portions of side-slope liners that overlap older landfill units while compacted clay is used for the base liners. The GCL is overlain by a 60 mil HDPE geosynthetic liner, followed by a geocomposite drainage net, and a 1-foot thick protective operations layer. For surface impoundments, the double liner design will use a lower composite liner system with a GCL and geomembrane liner overlain by a drainage layer and an upper geomembrane.

The Discharger made the demonstrations required by Section 2510(b) and (c) of Chapter 15 to use the alternative liner design. The Discharger demonstrated that the engineered alternative is consistent with the performance goal of the prescriptive standard and affords equivalent protection against water quality impairment and that the prescriptive standard is unreasonable, unnecessarily burdensome and will cost substantially more.

Active WMUs at the facility include Class III landfills, a Class II landfill, one interim Class II surface impoundment for landfill leachate, a Class II landfill dedicated to coal ash disposal, and a soil remediation pad. Inactive units include three Class III landfill WMUs with interim cover, one Class II land treatment unit for petroleum contaminated soils which was clean closed, and one Class I landfill (WMU A, formerly a Class II-1 unit) closed under a closure plan approved by USEPA, DTSC and the Board.

The older Class III landfill units are lined with four feet of compacted clay. These units are designed so that a portion of their volume is isolated from acidic landfill leachate. This allows for disposal of waste such as contaminated soil which is not a 'designated waste' based on results of a Waste Extraction Test using deionized water, rather than the standard citrate buffer

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